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09/740,209	12/18/2000	Jaan Noolandi	D/A0489	4337

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EXAMINER

DAWSON, GLENN K

ART UNIT

PAPER NUMBER

3761

DATE MAILED: 05/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/740,209

Applicant(s)

NOOLANDI ET AL.

Examiner

Glenn K Dawson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12 is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-11 and 14-17 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the spherical lenses must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1,2 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Khuri-Yakub-5028937.

Khuri-Yakub discloses an ink-jet printing device having acoustic lenses focused on a surface of ink which cause ink droplets to be delivered by capillary action. The lenses focus energy generated by transducers. The ink is placed under pressure and delivered to an area where the lenses focus the energy to a surface of the ink to produce the droplets. See col. 2 lines 41-51; col. 3 lines 30-31 and 49-53. Even though the device is used to make ink droplets, the device would work in the same manner to produce droplets of medication if the fluid used were a medicament instead of ink.

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Claims 1-3,5-7 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Sweet-5231426.

Claims 1-3,5-7 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Sweet-5231426.

Sweet discloses an ink-jet device where transducers produce energy which is focused by spherical or Fresnel lenses onto the surface of pressurized ink to produce droplets. A multiplexer 41 excites a sequence of transducers to produce energy. The frequency range is 5-300MHz.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3,4,6 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khuri-Yakub-'937 in view of Sweet-'426 and Biegelsen-6136210.

Kuhri-Yakub discloses the invention as claimed with the exception of the type of lenses, the 2nd driver and lens, and the distance of the lens from the surface of the fluid. Sweet discloses a plurality of the Fresnel and spherical lenses and associated transducers. Biegelsen discloses the use of "plastic" spherical lenses. Sweet also discloses that the distance from the lens to the surface of the fluid is adjustable to match the focal point of the lens being used. It would have been obvious to have used fresnel and plastic spherical lenses as the lens in Khuri-Yakub's device as they have been shown to an effective acoustic lens in droplet delivery devices. To provide a series of driving transducers and associated lenses has been shown to be effective to deliver droplets of fluid from variable source points and would therefore have been an obvious modification. To have made the distance from the lens to the surface of the fluid in the claimed range would have been obvious in the event that the lens used produced an effective focal length within the claimed distance.

37 and 49-53.

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Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sweet-'426 in view of Biegelsen-'210.

Sweet discloses the invention as claimed with the exception of the spherical lenses being plastic. Biegelsen discloses the use of plastic spherical lenses-see col. 3 lines 11-14.

To have made the lenses of Sweet out of plastic would have been obvious as it has been shown that such a material is used to manufacture acoustic lenses and is in great abundance for manufacturing purposes.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sweet-'426 in view of Takayama, et al.-5912679.

Sweet discloses the invention as claimed with the exception of the frequency. Takayama discloses the use of 10MHz frequency in an acoustic ink-jet printer-see col. 16 lines 52-64. It would have been obvious to have used the claimed frequency of under 15MHz, as taught by Takayama, as this has been shown to produce desirable ink droplet sizes.

Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sweet-'426.

Sweet discloses the invention as claimed with the exception of the specific distance from the lens to the surface of the ink. Since Sweet also discloses that the distance from the lens to the surface of the fluid is adjustable to match the focal point of the lens being used, to have made the distance from the lens to the surface of the fluid in the claimed range would have been obvious in the event that the lens used produced

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an effective focal length within the claimed distance. The smaller the distance, the larger the droplets produced. In some cases somewhat larger droplets would be desirable in order to make larger print.

Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hauser-'828 in view of Sweet-'426 and Ivri-'999.

Hauser discloses the invention as claimed with the exception of the distance from the lens to the surface of the fluid being in the claimed range and the circuit.

Sweet discloses that the distance from the lens to the surface of the fluid is adjustable to match the focal point of the lens being used. To have made the distance from the lens to the surface of the fluid in the claimed range would have been obvious in the event that the lens used produced an effective focal length within the claimed distance. The smaller the distance, the larger the droplets produced. In some cases somewhat larger droplets would be desirable in order to treat areas of the respiratory tract which are closer to the mouth or nose entrances.

Ivri discloses a circuit which senses inhalation and gates the sensing of inhalation with the actuation of the transducers in an aerosol delivery device.

It would have been obvious to have provided the device of Hauser with a circuit tied to a flow sensor for actuation of droplet-forming transducers, as Ivri has disclosed that such a feature allows for the gating of inhalation with the actuation of the transducers, and thus the aerosol-generating step allows for the effective delivery of medication only during inhalation which eliminates actuation during times at which the

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medication would not be breathed in sufficiently to reach the affected areas of the body, thus wasting medication and medicating healthy tissues.

Allowable Subject Matter

Claim 12 is allowed.

Claim 13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claims 1-7,9-11 and 14-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn K Dawson whose telephone number is 703-308-4304. The examiner can normally be reached on M-Th 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Weilun Lo can be reached on 703-308-1957. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3590 for regular communications and 703-306-4520 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.

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Glenn K Dawson
Primary Examiner
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gkd
May 17, 2003